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## Influence of Stereotyping and Prejudices on Perceptions of Superheroes

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INFLUENCE OF STEREOTYPING AND PREJUDICES ON PERCEPTIONS OF  
SUPERHEROES

By

EMILY A. SANCHEZ, Bachelor of Science

Presented to the faculty of the Graduate School of

Stephen F. Austin State University

In Partial Fulfillment

of the Requirements

For the Degree of

Master of Arts in Psychology

STEPHEN F. AUSTIN STATE UNIVERSITY

May 2018

INFLUENCE OF STEREOTYPING AND PREJUDICES ON PERCEPTIONS OF  
SUPERHEROES

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## ABSTRACT

Fictional superheroes possess characteristics that can be identified with on a human level (e.g., gender and race); however, their superhuman nature may lead them be evaluated as a distinct outgroup. The current study attempted to assess how racial and gender attitudes may affect perceptions of superheroes and how other participant characteristics may impact ratings. The current study found that gender and race influenced evaluations of perceived attributes of superhero drawings. Figures depicted with an unnatural skin tone were rated less favorably. Although, there were no differences between ratings of Black and White heroes, Black heroes were consistently rated higher, particularly when compared to the alien group. Female heroes were rated less strong and more intelligent; however, males were rated higher in leadership. The results of the current study provided evidence that minority group members may be subtyped and that gender stereotypes may persist even in the evaluation of superhuman characters.

*Keywords:* prejudice, bias, superheroes, outgroups, wishful identification

## ACKNOWLEDGEMENTS

I would like to thank my Thesis chair, Dr. Nathan Sparkman, whose guidance and support made this thesis possible. I have enjoyed working with you on this project as well as our other superhero projects; your excitement for the project helped me stay motivated when it seemed like the data were never ending. Additionally, I would like to thank my committee members: Dr. Sarah Savoy, Dr. Scott Drury, and Dr. Megan Condis, each of whom assisted in the development and execution of my thesis.

Thank you to my cohort for being an unending source of support. A special thanks to Tessa Thomas, Michael Rice, and Neusha Khaleghi who made the long hours of writing and rewriting filled with fun and laughter when it got to be grueling. Thank you for spending long hours at Thumpers while we all studied and drank coffee and for all the memories made in the last two years.

Finally, I would like to thank my family: my husband, parents, and sister, for their constant support and encouragement throughout my education and life in general. Thank you for the late calls, understanding the work and time that went into this project, and your unwavering positive affirmation as I completed this project.

## TABLE OF CONTENTS

Abstract	iii
Acknowledgements	iv
List of Tables	viii
Introduction	1
Schemas, Stereotypes, & Prejudice	2
Group identities: In-group vs Out-group	6
Implicit and Explicit Attitudes	9
Attitudes and Media Perception	11
Impact of media	11
Wishful identification	13
Superheroes	14
Current Study	14
Method	17
Participants	17
Materials	17
Stimuli	17
Measures	18
Design	20

Procedure	21
Data Analysis	22
Results	23
Data Cleaning	23
Assumptions	24
Main Analysis	27
Effect of Character Race	28
Effect of Character Gender	30
Additional results	31
Discussion	32
Limitations and Future Directions	39
Conclusion	40
References	41
Appendix A: Informed consent	47
Appendix B: Stimuli	49
Appendix C: Character ratings	50
Appendix D: Wishful Identification	51
Appendix E: Sex Role Questionnaire	52
Appendix F: Social Desirability	53
Appendix G: Demographics	54
Appendix H: Debrief	56



Appendix I: Additional Results	57
Vita	60

## LIST OF TABLES

<i>Table 1:</i> Means and standard deviations of covariates	26
<i>Table 2:</i> Estimated marginal means for race	29
<i>Table 3:</i> Estimated marginal means for sex of character	31
<i>Table 4:</i> Regression using Wishful Identification to predict individual dependent variables	57
<i>Table 5:</i> Correlations of Wishful Identification and superhero demographic knowledge.	58
<i>Table 6:</i> Correlation between Wishful Identification and the Ten Item Personality Inventory	59

## INFLUENCE OF STEREOTYPING AND PREJUDICES ON PERCEPTIONS OF SUPERHEROES

An increasingly popular genre of media focuses on superheroes (e.g., Superman; DC comics, 2017). This genre has relied upon schemas and iconography to quickly relay information about a character. For example, brightly colored capes and costumes quickly identify the hero, while darker colors are typically associated with the villains; however, consumers may bring with them additional schemas that may influence their appraisal of the character. Superheroes are often associated with nonhuman powers and being the epitomes of justice, bravery, and virtue. So, while superheroes may be paragons of admired traits, perceptions of individual superheroes may still be stigmatized by gender and race despite their greater, superhuman status. For example, female superheroes may persistently be judged to be weaker than their male counterparts or minority heroes may be judged less likely to be a leader and more likely to be a sidekick.

Little research has attempted to assess the influence that the superhero genre has on racial bias and prejudicial attitudes. Nor has it been explored how attitudes towards race and gender may affect the appraisal of perceived characteristics of a fictional hero. Personal attributes of audience members (e.g., race and gender) can also impact a person's ability to identify with characters. Typically, people identify with characters that they judge to be like themselves and judge those characters more favorably. Individual levels of identification may also influence the way in which characters are perceived.

Little research has assessed the influence of identification on adult perceptions of superheroes.

The current study addressed how prejudice and stereotyping may influence judgements of novel fictional characters identified to be in the superhero genre. Participants made a series of judgments regarding particular qualities of a superhero character. Character models varied in skin tone but shared common forms (i.e., bodies) and costumes across condition. Participants assessed both male and female characters of the same skin tone. In addition, the current study aimed to assess how variables that influence character-audience identification impact judgements.

#### Schemas, Stereotypes and Prejudice

The human mind has the inherent and automatic tendency of placing items into categories. Schema formations help organize information categorically and may aid in information retrieval and in dealing with new and unfamiliar situations (McVee, Dunsmore, & Gavelek, 2005). For example, a child may learn the schema for a dog to be any animal that has four legs, fur, and floppy ears. Upon encountering a novel breed of dog, they might recognize it as a dog by utilizing the established schema. Schemas may be influenced by past experiences and outside information. From the prior example, after categorizing an animal as a dog, the child may consider the dog as “good” or “bad” based upon their prior experiences with dogs or what they have been told of dogs.

Similarly, categorizations formed for people may be based upon outward characteristics including race and gender. Recall of these categories may influence

cognition and attitudes which, in turn, may influence both overt and covert behaviors towards persons. Schema formation can be influenced by sources such as peers, media, and experiences or interactions either observed (i.e., indirect) or direct (Bushman & Huesmann, 2006). These outside sources help form implicit properties for these categories and influence how individuals react to members of associated categorical groups. Part of outside information may also contain gender roles. Specifically, media may portray women or minorities in stereotypical behaviors. Specifically, women may be portrayed as weaker than men or not as good at science (Greenwald & Banaji, 1995; Greenwood, Pieromono & Long, 2008). As such, the acceptance of these gender roles, may impact perceptions of individuals.

Negative appraisals of an individual may be reflective of the negative attitude toward the group rather than the individual themselves. This negative appraisal may also occur when information about the individual is limited or discounted (Allport, 1958). This is prejudice. In the past, expressions of racial and ethnic prejudice were often blatant and overt, whereas today prejudices are often expressed more covertly and yet may still result in discrimination (Pettigrew & Meertens, 1995). Furthermore, prejudices may be based upon misperceptions and incorrect appraisals. Discrimination is the outward behavioral expression of prejudicial attitudes. Importantly, prejudices (i.e., negative schemas) are often used to justify discriminatory behaviors (Brief, Dietz, Cohen, Pugh, & Vaslow, 2000).

Schema formation can result in stereotyping. A stereotype is a generalized belief regarding members of a social category (Greenwald & Banaji, 1995). Stereotypes often emerge out of schemas however stereotypes often have negative connotations (Blum, 2004). Although stereotypes may have a piece of truth regarding characteristics of a group, stereotypes often assume that the characteristic applies to all members without acknowledging individual differences (Blum, 2004; Bordalo, Coffman, Gennaiolo, & Shleifer, 2016). For example, although many basketball players are tall, not all basketball players are tall. Stereotypes may be formed for several groups (e.g., racial minorities, and females).

Implicit stereotyping may occur when an unidentified experience influences the qualities that are associated with members of a group (Greenwald & Banaji, 1995). Therefore, people may be unaware of the basis for their prejudices. For example, if a child is scolded by a female teacher who is older, the child may generalize that experience to all older women. The next time the child encounters an older woman, they may avoid the woman without realizing the reason. This generalization may in turn influence preexisting attitudes and ideas leading to discrimination or preference for other groups based on unidentified previous experience. These implicit and covert (i.e., nonconscious) prejudices may influence choices and how people treat and evaluate others, such as in hiring situations and appraisals of job applicants (Blommaert, van Tubergen, & Coenders, 2012; Brief et al., 2000; Deros, Nguyen, & Ryan, 2009; Fein & Spencer, 1997).

Job-applicant research has been used to assess both explicit and implicit prejudice and discrimination towards minority groups. For example, Blommaert et al. (2012) had participants tested for implicit and explicit attitudes look at resumes of fictitious applicants for a job. The participants assessed applicants characterized as native Dutch, Moroccan-Dutch or Turkish-Dutch with varying levels of qualifications. Applicants' ethnicities and skill levels were counterbalanced across participants. Participants then determined the applicants' level of qualification and chose three to interview. Researchers found that increased levels of negative explicit attitudes significantly affected judgement of qualifications. Wherein, increased negative attitudes towards a group were tied to lower ratings of their qualifications. Furthermore, implicit and explicit attitudes significantly impacted the choice of interviewees.

In the same vein, several researchers have shown that knowledge of group membership can influence perceptions of job qualifications (Deros et al., 2009; Fein & Spencer, 1997). For example, Deros et al. (2009) found that resumes containing high levels of salient group information (an Arabic name and Arabic affiliations) received lower ratings on job qualifications compared to those with less salient group identity (Caucasian name and Arabic affiliations). These results suggest that even subtle identifiers within an application can induce prejudice.

In addition to job applicants, medical patients may experience prejudice from health care providers (Shavers et al., 2012; van Ryn, 2002). Research suggests that physician's perception of patients may be impacted by a patient's race, socioeconomic

status, and stigma associated with a medical condition, such as weight or HIV status (Stuber, Meyer, & Link, 2008; van Ryn & Burke, 2000). Van Ryn and Burke (2000) found that African American cardiac patients received lower ratings regarding patient personality, intelligence, and compliance compared to White patients. These perceptions of patients remained regardless of characteristics of the physician (e.g., race and gender). Similar results have been found in regard to mental health services and other services (for a review, see van Ryn, 2002). Despite the expectation that medical providers should treat all equally, they are not immune to prejudicial attitudes.

In the current study, covert prejudice might be seen in the evaluation of superheroes abilities. Similar to job applicants, superheroes are expected to fulfill a role. These prejudices may appear in the evaluations of subtle information such as costume appearance and other readily identifiable visual traits. Therefore, it is possible that schemas for prejudice may result in lower ratings for minority characters and female characters.

#### Group Identities: In-group vs Out-group

Social identity theory, suggests that people categorize themselves and others by similarities and differences and make comparisons (Tajfel & Turner, 1979). Groups that share characteristics that a person self-identifies with are considered ingroups. Groups and individuals with characteristics with which a person does not identify with are considered the outgroup(s). Ingroups and outgroups are complex in nature in that a person can have multiple groups with which they identify (Brewer, 1999). Ingroups can



be based on race, religion, ethnicity (Bouckaert & Dhaene, 2004), gender, school affiliation (Hunter, Kypri, Stokell, Boyes, O'Brien, & McMenamin, 2004) and even activities in which a person chooses to participate (Eckel & Grossman, 2005). For example, a White female might identify with the ingroups of White and female. She may additionally, categorize herself as a member of other groups such as Republican, Baptist, or even knitting devotee. Her respective outgroups may be non-White, male, or those who do not share her enthusiasm for yarn.

Intergroup interactions often involve comparison of the ingroup and out-groups (Tajfel & Turner, 1979). According to the social identity theory, there is an inherent preference for the perceived ingroup of the observer during social comparisons (Brewer, 1999; Charness, Cobo-Reyes, & Jiménez, 2014; Guala, Mittone, & Ploner, 2013; Tajfel & Turner, 1979). This ingroup bias is consistently found even when groups are arbitrarily formed. For example, Tajfel, Billig, Bundy, and Flament (1971) performed a study in which participants were divided into groups upon stating their preference for a particular artist. Subsequently, there was an ingroup bias of allocation of resources for the assigned group (i.e., the ingroup).

Although individuals have a multitude of qualities that may serve as the basis for the formation of group membership, ingroup bias occurs most often for the quality that is most salient and relevant during a particular social situation (Brewer, 1999; Hunter et al., 2004; Levy, Saguy, van Zomeren, & Halperin, 2016; Mohr & Larsen, 1998; Tajfel & Turner 1979). For example, Mohr and Larsen (1998) found that Australian football

umpires favored teams from their own regions. Umpires tended to allow more penalty kicks for the home team. Although umpires have many groups for which they may belong, the salience of region or sports team may be most salient during games compared to race, gender, or religion as teams are regionally based.

As demonstrated by Tajfel et al. (1971; see above), ingroup bias may still be present in the absence of outgroup hate (see also Allport, 1958; Brewer, 1999). It is possible for outgroups to be formed in the absence of positive or negative opinions regarding the out-group. That is, preference for the ingroup does not require dislike for the out-group. Additionally, outgroups may be viewed with empathy and without active disdain or negative attitudes towards them. It is still possible that the lack of positive attitudes towards outgroups may lead to increased ingroup outgroup distinctions that, in turn, lead to subtle prejudices (Brewer, 1999; Meertens & Pettigrew, 1997). Therefore, ingroup bias without direct negative attitudes toward an outgroup can be harmful to intergroup relations (Brewer, 1999).

The current study assessed ingroup and outgroup gender and racial attitudes towards superheroes characters. These fictional characters allow for evaluation of perceived traits. For example, superheroes may be identified with regard to race, ethnicity, and gender. However, superheroes may form a distinct outgroup regardless of their other qualities. This distinct difference may result in the process of subtyping or subgrouping, wherein individuals may sort the members of a larger superordinate category based on exemplars or levels of typicality (Maurer, Park, and Rothbart, 1995;

Richards & Hewstone, 2001, for review). In the current study, characters identified as similar or a part of the ingroup of the participant (i.e., same race or gender) may receive preference (higher attribute ratings) over characters that are not similar (i.e., different race or gender).

### Implicit and Explicit Attitudes

Attitudes towards an outgroup and intergroup relationships may be implicit or explicit. Explicit attitudes are those that an individual acts on and which the participant is aware. In contrast, implicit attitudes automatically activate outside of full awareness and influence behavior (Greenwald & Banaji, 1995). That is, a person may not express or believe they hold negative attitudes towards a group but may change their behaviors in the presence of that group. For example, someone who verbally expressed a positive attitude toward youths may automatically avoid places where youths are known to congregate.

The measuring of implicit attitudes must rely upon the observation of behaviors or responses to a task not explicitly measuring attitudes. For example, the Implicit Association Task (IAT) measures response latency of sorting images or words related to certain concepts, evaluations, and stereotypes (Greenwald, McGhee, & Schwartz, 1998). This task is formulated under the assumption that if the items on the same key entry are closely associated in the mind, the sorting response time should be shorter. For example, if there is an implicit attitude towards a group, such as minorities, the response time

would be longer for sorting items into the categories good and Black compared to White and good.

Explicit attitudes are more likely to be activated when a person has time and motivation to understand the outcomes of an action (Dovidio, Kawakami, & Gaertner, 2003). Explicit attitudes can be measured using self-report questionnaires. Direct surveys may fail to always reflect explicit attitudes if social desirability is strong and participants believe that their attitude is unpopular. Therefore, surveys may attempt to account for this potential confound by including a form of deception to mask the study's true purpose or by measuring social desirability. For example, when surveying over a topic that it is likely to receive socially desirable responses such as race, the survey presented should contain additional items to distract from the original purpose, provide a vague description, or use a measure like the Marlow-Crowne to assess social desirability (Nederhof, 1985).

Implicit and explicit attitudes may produce conflicting messages due to the potential incongruences due to the difference in expression or activation (Dovidio et al., 2003). Dovidio, Kawakami, Johnson, Johnson, and Howard (1997) found that self-reported prejudice predicted deliberate behaviors whereas response latency, like the IAT, revealed implicit prejudice and predicted more unprompted behaviors. In the current study, participants were presented with characters containing the same form (i.e., bodies and skin tone) but with a variety of costumes. Participants were told to assess characters based on design aspects. This deception attempted to avoid socially desirable responses.

In addition, participants responded to a shortened measure of social desirability. With the use of online methods and deception, it is assumed that participants felt less need to think of the consequences of responses. Therefore, the current study attempted to assess implicit attitudes rather than explicit attitudes.

### Attitudes and Media Perception

**Impact of media.** Television and other media sources, including the internet, are ubiquitous in daily life. Young children may spend an average of three or more hours a day watching television, while teens and adults, according to the Nielsen report, spend an average of five hours or more a day watching television (Nielsen, 2016; Zimmerman & Christakis, 2005).

Media representations can be used to either confirm group divisions or break them down through extended contact (Harwood, 1999; Joyce & Harwood, 2012; Vezzali, Stathi, Giovannini, Capozza, & Trifiletti, 2015). Harwood (1999) argued that individuals may watch media portrayals that increase their identification with a certain social group (in-group), thereby increasing positive feelings toward that social identity. However, outside sources such as, perspective taking, exposure, media, and extended contact may influence in-group bias and increase positive attitudes towards out-groups (Peck, Seinfeld, Aglioti, & Slater, 2013; Vezzali et al., 2015). Additionally, research has found that the presence of exemplars, or minority figures that present counter stereotypical behaviors may improve perceptions of minority groups (Ramasubramanian, 2011; Power, Murphy, & Coover, 1996).

Researchers have used virtual reality and video games to attempt to reduce in-group biases. For example, Peck and colleagues (2015) found that when a person was placed in a virtual reality simulator to embody a character of dark skin tone (different from their natural skin tone), there was a reduction in implicit bias against those in the virtually experienced out-group (based on skin-tone). The researchers argued that this reduction was based in racial bias for one's own race due to a race neutral condition of an alien race (purple skin-toned). No biases were found in regard to the purple character. Purple skin was thought to not be associated with humans, nor as a social group, and therefore had no present stereotype or attitude associated with the purple skin-toned outgroup (Peck et al., 2013).

In addition, research has shown that reading fictional literature containing positive intergroup relations with stigmatized group can lead to increased positive feelings towards the stigmatized group (i.e., immigrants, homosexuals, and refugees; Vezzali et al., 2015). This speaks to the mere exposure effect, wherein simply being exposed to a stimulus, consciously or non-consciously, is enough to improve a person's attitudes towards a stimulus (including members of outgroups). The mere exposure effect has been shown to also be impactful during exposure to complex stimuli for short intervals (five seconds; Bornstein & D'agostino, 1992). This suggests that even simple exposure, such as commercials, may influence attitudes towards groups. In addition, Vezzali et al. (2015) utilized popular culture materials to improve attitudes towards out-groups. Therefore, it is plausible that superheroes may impact perceptions of race and gender. The popularity of

the superheroes genre suggests that known superheroes may be excluded from biases as they are familiar. However, it is unknown, how people will judge novel characters that are still readily identifiable with this familiar genre.

**Wishful identification.** One factor that influences the impact of media is a character's similarity to the viewer. Wishful identification involves the desire or want to be more similar to a character. Hoffner and Buchanan (2005) found that media characters were perceived to have greater similarity to the reader or viewer when they were of a shared gender and were more likely to be chosen as favorites when the character was of the same race as respondents. This implies that perceived, as well as visual, similarity may be part of an individual's identification with media characters.

Furthermore, similar to in-group bias, wishful identification may increase positive perceptions of a character. Therefore, wishful identification may mediate perceptions of superheroes. With greater wishful identification, the more likely the wisher will want to take on the roles or behaviors that are portrayed by that character. Therefore, it is possible that participants will judge superheroes, who share similar characteristics to themselves, more favorably.

Past research has focused on the characteristics of human characters. It may be that characters who possess extraordinary attributes are less likely to be identified with due to decreased similarity. In the current study, wishful identification was assessed specifically regarding superheroes, therefore it was assumed that wishful identification with superhero characters may influence the ratings of hero characters. While,

superheroes have characteristics such as race and gender that may promote wishful identification, it may prove difficult to identify with them due to their status as superhuman. Thus, it is important to understand how wishful identification may influence perceptions of the race and gender of superheroes.

### Superheroes

Various media genres have risen and fallen in popularity over the decades including westerns, martial arts, and others. Superheroes have enjoyed surges of popularity since their first printing. Since 2005 there have been over 48 movies released regarding superheroes and their stories (Marvel.com, 2017; DCcomics.com, 2017). Due to the increased prevalence of superheroes, it is important to understand the impact of these types of characters.

According to Baker and Raney (2007), the definition of a superhero requires four criteria: completing a mission or task, being a representative of the forces of good, defeating evil or villains, and possessing a characteristic or skill not typical of the normal universe. Some have suggested that the impact of watching superheroes is conflicting due to the prosocial behavior of helping the weak and the way they help (e.g., violence; Coyne, Stockdale, Linder, Nelson, Collier, & Essig, 2017; Martin, 2007; Rosenberg, Baughman, & Bailenson, 2013).

### Current Study

In the current study, we were interested in how prejudice and stereotyping may influence judgments of novel fictional characters identified to be in the superhero genre.



Participants made a series of judgements regarding qualities of a superhero character. Character models varied in skin tone but shared common forms (i.e., bodies) and costumes across condition. Participants assessed both male and female characters of the same skin tone. In addition, the current study aimed to assess how variables associated with character-audience identification may be related to the ratings of characters. Based on previous research, it was hypothesized that participants would assign more positive characteristics to superheroes that were more similar to themselves (i.e., share the same race and gender). Characters that were of the same gender and/or race may be perceived as in the in-group therefore receive higher ratings and have higher levels of wishful identification.

In line with past research (Blommaert et al., 2012; Fein & Spencer, 1997), it was hypothesized that minority superheroes may be rated lower on superhero qualities compared to non-minority superheroes. Based on applicant research, it was possible that covert prejudice may be observed during superhero quality judgements. However, it may be possible that due to their superhuman quality, superheroes may overcome aspects of covert prejudice. Interestingly, in the superhero genre, race is not always representative of real society. For example, some superhero characters are from different planets, and their skin tones are purple or blue. Based on these characteristics of superheroes, the current study aimed to understand perceptions of race through superheroes.

The current study used three conditions of skin tone (Black, Blue, and White) to assess attitudes. When accounting for a participant's own race, it was hypothesized that

the nonracial (Blue) hero may be rated the least favorable compared to the other two races. Controlling for an individual's race should account for potential in-group bias and therefore reveal no group biases, and only a novel character, such as the blue, should receive lower scores due to its extreme nature and lack of personal identification. However, the nonracial hero may not be rated any different compared to the other two races. In line with research conducted by Moss-Racusina, Dovidio, Brescoll, Grahama, and Handelsman (2012), it was also hypothesized that females would be rated in a more stereotypic way compared to male superheroes (i.e., not as strong, lower leadership skills, less intelligent, less courage).

In addition, the current study aimed to assess the covariation of gender role acceptance and wishful identification. It was hypothesized that perceptions regarding gender would be influenced by a participant's acceptance of gender roles. Greater acceptance of traditional gender roles may impact the perceptions of female heroes. It was also hypothesized that a person's wishful identification may influence perceptions of superheroes over all (i.e., less wishful identification leading to lower overall ratings regardless of race or gender). Research has shown that wishful identification may influence the impact characters have on a person and therefore characters may be perceived as more favorable if wishfully identified with leading to reduced prejudiced evaluations.

## Method

### Participants

Participants were undergraduate students at Stephen F. Austin State University. Two hundred participants were collected. Participants were between the ages of 18-31 years old ( $M_{age} = 18.98$ ), 83.1% female ( $n = 143$ ) and 28% male ( $n = 28$ ). Participants were 66.9% White ( $n = 115$ ). Participants were mainly non-Hispanic or Latino (75%). Of the 172 participants, 12 reported being color deficient (having visual color blindness). Participants received research participation for class credit in the form of one R-point.

### Materials

**Stimuli.** Stimuli were made using an online character building program (heromachine.com, HM2). Stimuli consisted of line drawings images. Stimuli were male or female. A base figure was made such that facial features and body structure were similar for both male and female characters (See Appendix B). Neutral racial features were used, such as black eyes so as to not create bias. For all males, the same facial features were used. Female features were similar in nature to the male figures; however, females' lips and eyes were not the same as males. For the female heroes, features were made to be as similar to males and as natural as possible using the program. The stimuli consisted of three different skin tones: Black (R141, G101, B49), blue (R54, G185, B239), and White (R255, G208, B140; see Appendix B). For all stimuli of the same race, the shade used was consistent. Characters varied in costume and color of costume. Costumes varied in design but were made so that the characters were not sexualized.

Additionally, hair styles varied along with the costume to avoid bias regarding hair and race. Seventeen different superhero costumes were made as well as 10 alter ego costumes. For each costume variation, there was a Black, Blue, and White character with matching costumes as well as a male and female for each costume. A total of 129 characters were made (109 superheroes and 29 alter egos) including, 63 females, 66 males, 43 Black, 43 Blue, and 43 White characters. There was a total of three conditions.

**Character Ratings.** Each character presented was rated on eight qualities: strength, intelligence, attractiveness, heroism, evilness, leadership ability, courage, and levels of identification. Each quality was rated using a zero to 100 scale with increments of 10 units. Lower numbers represented less of that characteristic and higher numbers represented more of that characteristic. Both individual ratings and total scores were assessed and compared between characters. A total attitude score was calculated by taking the average of the ratings of the eight qualities (See Appendix C).

**Modified Wishful Identification Questionnaire (MWI).** The MWI is a self-report scale used and created by Hoffner and Buchanan (2005). This scale was used to assess a person's wishful identification with superheroes ( $\alpha = .86$ ). Participants provided their degree of agreement with statements presented regarding superheroes, using a 5-point Likert type scale with the anchors 1 (*Strongly disagree*) to 5 (*Strongly agree*). Responses were averaged to create a total score. Higher scores indicate greater levels of wishful identification. An example item is "Superheroes are the sort of people I want to be like myself." Additionally, a modified version of a measure assessing how much

participants would like to be like superheroes in terms of behavior was used (Greenwood, Pietromonaco, & Long, 2008; See Appendix D)

**The Social Roles Questionnaire (SRQ).** The SRQ is a 13-item self-report questionnaire that assess gender attitudes and attitudes towards roles associated with genders (Baber & Tucker, 2006;  $\alpha = .86$ ). Participants provided their degree of agreement with statements related to gender using a 7-point Likert type scale using the anchors 1 (*Strongly disagree*) to 7 (*Strongly agree*). Higher scores indicate greater acceptance of gender roles. The SRQ has two factors: Gender-transcendent (gender in a non-dichotomous way;  $\alpha = .80$ ) and beliefs of certain roles associated with a particular gender ( $\alpha = .77$ ). Composite scores were created by averaging responses to the 13 items. An example item is “only some types of jobs are appropriate for both men and women” (See Appendix E).

**Short Homogeneous Marlow-Crowne Social Desirability Scale (M-C SDS; MC1).** MC1 is a shortened 10-item version of the original Marlow Crowne Social Desirability Scale. The MC1 has been shown to have the same validity and reliability as the original scale that was criticized for having several items that contributed little to the overall measure (Strahan & Gerbasi, 1972). The M-C SDS is a true/false self-report measure that assesses a person’s tendency to towards responding in a socially desirable way. This scale has been found to be reliable in both male ( $\alpha = .70$ ) and female ( $\alpha = .63$ ) college populations. An example item from this scale is: “I never resent being asked to return a favor” (See Appendix F). For the current study, reliability was  $\alpha = .56$ .

**Demographics.** The demographics collected in the current study included age, race, ethnicity, color deficiency (visual color blindness), education level, level of superhero knowledge, frequency of consumption of superhero media (i.e., comics, movies, television) and admiration of superheroes (See Appendix G).

**Hypothesis suspicion.** To assess potential hypothesis guessing participants were asked after the study a question regarding the purpose of the study. Specifically, participants were asked: “If you had to guess the purpose of the study, what would you guess?”

**Attention checks.** Participants attention was assessed using reverse scored items within the character rating scales (heroism and evilness), in addition to the assessment of characters not in a typical superhero costume. It was assumed that if a character was rated highly on the characteristic “heroism” then the same character should be rated lower on the characteristic of “evilness.” In addition, characters that were not in typical superhero costumes should be rated lower on the character qualities compared to their superhero counterparts.

### Design

A 2 (Sex: female or male) x 3 (Race: Black, Blue, or White,) mixed-model design was used wherein race was a between-participants variable and gender was a within-participant variable. The mixed model design was used to prevent hypothesis guessing by participants. It was assumed that participants seeing three distinct races (Black, Blue, and White) would allow for hypothesis guessing and this would influence the ratings thereby

not providing valid ratings. This design resulted in the following groups: Black male characters, Black female characters, Blue male characters, Blue female characters, White female characters, and White male characters. Specifically, participants saw either male and female Black characters, male and female White characters, or male and female Blue characters.

### Procedure

The participants signed up for the online study through the Department of Psychology's SONA systems where they were directed to a Qualtrics link (an online survey tool). Participants were presented with an informed consent form and asked to give or deny consent. Once consent was given, participants were presented with 22 randomly presented images that corresponded to the randomly assigned condition (Black, Blue, or White). In each skin tone condition, male and female characters were randomly rated by each participant. While each character was presented participants rated the character on the dependent variables (strength, attractiveness, intelligence, leadership, heroic, evil, courage, and identification). After the participant completed the rating task, they were instructed to fill out the remaining questionnaires (Wishful Identification, SRQ, and MC-SDS) which were presented randomly. Participants then provided demographics including superhero exposure and familiarity. After completing the demographics, participants were debriefed, thanked, and granted credit.

## Data Analysis

A repeated measures 2 (Sex: female or male) x 3 (Race: White, Black, or Blue) multivariate analysis of variance (MANOVA) was performed to assess the results of the study. The dependent variables were the ratings participants gave the heroes presented on eight qualities (strength, attractiveness, intelligence, leadership, heroism, evilness, courage, and identification). A repeated measures analysis was used because of the within-subjects sex variable (i.e., participants saw both male and female characters of a single race). ANOVAs are only able to detect differences between multiple predictors and one outcome variable. In other words, they are unable to account for relationships between multiple outcome variables. In contrast, MANOVAs examine combinations of variables amongst multiple dimensions and reduce the probability of obtaining a Type I error (Huberty & Morris, 1989; Field, 2013). For example, a MANOVA allows for a single analysis to be ran to assess the influence an independent variable over multiple dependent variables. A single analysis is preferred to several tests in that by using one MANOVA test reduces the rate of Type I error that running multiple ANOVAs would increase. It was hypothesized that male characters would be rated more positively compared to female characters. It was further hypothesized that when controlling for the participant's own race, there would not be a significant difference in ratings of the White and Black characters, but rather, the Blue character would have the lowest ratings. It was also hypothesized that higher levels of wishful identification would lead to higher ratings of characters. Finally, it was hypothesized that greater levels of gender role acceptance



would lead to lower ratings of female characters. An interaction of sex and race was expected, with White males predicted to be rated the most favorably. Post-hoc analyses were used to assess the exact relationship between groups, as MANOVAs only show omnibus results. The data collected showed potentially large variations in ratings between participants, and as such, some test assumptions were affected, as discussed below. Bonferroni's test was used due to its conservative, robust nature. More specifically, the robust nature of Bonferroni's test allows for the violations of certain test assumptions, and its conservative nature reduces the occurrence of Type I errors.

## Results

### Data Cleaning

Data were cleaned, tested for assumptions, and analyzed using SPSS statistical software. A total of 200 individuals participated in the study. Of the 200 participants, four were removed for failing to meet the criteria of being 18 years old or older, leaving 196 participants. Of the remaining 196, two participants were removed for failing to complete 90% of the survey (Bennett, 2001). Twenty-two participants failed the manipulation check (i.e., the ratings of heroism and evilness were not complimentary) or reported a response set. A one-way ANOVA was conducted to determine whether those who failed the attention check were significantly different from those who passed the attention check. A significant difference was found, as such, these participants were removed from analysis, resulting in 172 total participants. Next, individual missing data were assessed. Due to a technical issue, some individuals failed to respond to some superhero ratings. As

such, missing values for the hero ratings (1.3 % of rating data; 0.4 % of all data collected) were replaced with a score of zero. Multivariate outliers were assessed using Mahalanobis distance. A chi-squared value with two degrees of freedom and a  $p < .001$  yielding a value of 13.82 was used (Barnett & Lewis, 1978). There were no multivariate outliers.

Twelve participants reported being color-deficient. Those who were color-deficient were compared to those who did not report color deficiency, collectively and within conditions. Individuals who reported visual color deficiency were not significantly different from those who did not report visual color deficiency; however, in both the Black and Blue conditions, those who were color deficient were significantly different compared to those who were not on two of the dependent variables. Since the participants were not significantly different on more than 50% of the dependent variables, those who reported visual color blindness were not removed. The final number of participants used for analysis was 172 participants.

### Assumptions

Before running the main analysis, the assumptions for running a multiple analysis of covariance, MANCOVA, were tested. Outliers were assessed using a boxplot for each dependent variable and for the time it took to take the survey. The box plot showed outliers for duration (i.e., the time it took to take the survey), however when compared to those who were not outliers, there were not significant differences between the groups. As such, none were removed from analysis. P-P plots were visually assessed to test

normality, skewness and kurtosis. Upon inspection, all kurtosis and skewness values were all within one unit of zero (Field, 2013). Q-Q plots were also inspected and found to be acceptable. Scatter matrix plots were used to test the linearity between each pair of dependent variables within each condition and the assumption was met.

The covariates of wishful identification, social desirability, and gender role acceptance were assessed with a one-way ANOVA. There were no significant differences between groups for on any of the covariates (See Table 1). As such, there was no justification for including them in the model. Additionally, it was thought that levels of familiarity with superheroes would be an influential factor. A one-way ANOVA was performed to determine differences between conditions on familiarity measures (frequency of superhero exposure, superhero knowledge). No significant differences were found for the familiarity variables. Therefore, no covariates were included in the repeated measures MANOVA.

Table 1

*Means and standard deviations of covariates*

Variable	Black				White				Blue			
	M	SD	95% CI		M	SD	95% CI		M	SD	95% CI	
			LL	UL			LL	UL			LL	UL
Social												
Desirability	4.42	2.24	3.84	4.99	4.00	1.83	3.50	4.50	4.29	1.92	3.79	4.79
Wishful												
Identification	3.36	0.70	3.18	3.54	3.42	0.86	3.18	4.50	3.35	0.85	3.13	3.57
Social roles	3.20	1.15	2.90	3.50	3.40	1.02	3.12	3.68	3.47	.99	3.21	3.73

*Note:* There were no statistical differences between the three conditions on any of the covariates.

Therefore they were not used in the overall model

Homoscedasticity and homogeneity of the variance and covariance matrices were assessed using Box's M test which was significant  $F(272, 71797.301) = 1.237, p = .005$ . Although Box's test was significant, this test statistic is susceptible to deviations from multivariate normality in large samples (Field, 2013). Since Box's M is flawed, Levene's test was assessed for each dependent variable to better assess the homogeneity of the univariate variance. Levene's test was not significant for any of the dependent variables, indicating that the assumption of equality of variance and covariance matrices was met (Levene, 1960). The variance inflation factor (VIF) and the tolerance statistics showed no multicollinearity in the data (Field, 2013). Finally, independence of errors was confirmed by the Durbin-Watson statistic.

#### Main analysis

A repeated measures 2 (Sex: female or male) x 3 (Race: White, Black, Blue) multivariate analysis of variance (MANOVA) with conducted to examine participants' ratings of superheroes' strength, attractiveness, intelligence, leadership, heroism, evilness, courage, and identification. Due to the sheer volume of means across each race and gender ratings, we have allayed means to Table 2 and Table 3. There were 60 people in the Black racial condition, 52 in the White racial condition and 59 in the Blue racial condition. For the repeated measures MANOVA, an interaction between character race and character gender was not found, (Wilks'  $\lambda = .121, F(16, 322) = 1.319, p > .05$ ). A significant main effect of character race (Wilks'  $\lambda = .851, F(16, 322) = 1.687, p = .048$ ),

and a main effect of character gender (Wilks'  $\lambda = .318$ ,  $F(8,161) = 43.171$ ,  $p < .001$ ) were found.

**Effect of character race.** Main effects of character race was found for the dependent variables strength ( $F(2, 168) = 4.534$ ,  $p = .012$ , partial  $\eta^2 = .05$ ), intelligence ( $F(2,168)=7.065$ ,  $p = .001$ , partial  $\eta^2 = .08$ ), attractiveness ( $F(2,168) = 5.078$ ,  $p = .007$ , partial  $\eta^2 = .06$ ), and heroism ( $F(2,168) = 3.456$ ,  $p = .034$ , partial  $\eta^2 = .04$ ). Bonferroni post hocs revealed that the Black heroes condition ( $M = 73.33$ ;  $SD = 12.10$ ) was rated higher on strength compared to the Blue heroes ( $M = 65.5$ ;  $SD = 14.05$ ),  $p = .009$ . Additionally, post hoc revealed that the Black heroes ( $M = 68.53$ ;  $SD = 13.33$ ) were rated as more intelligent than the Blue heroes ( $M = 58.70$ ;  $SD = 13.11$ ),  $p = .001$ . Post hoc revealed that the difference of attractiveness was between the Black heroes ( $M = 57.97$ ;  $SD = 20.69$ ) and the Blue heroes ( $M = 47.89$ ;  $SD = 14.54$ ) wherein Black heroes were rated as more attractive than Blue heroes,  $p = .006$ . Finally, for heroism, the racial difference was between the Black ( $M = 61.09$ ;  $SD = 14.37$ ) and Blue heroes ( $M = 54.67$ ;  $SD = 11.95$ ),  $p = .032$ . The Black heroes were rated as more heroic than the Blue heroes. There were not significant differences between racial conditions on evilness, leadership ability, courage, or identification.

Table 2

*Estimated marginal means for race*

Variable	Black				White				Blue			
	M	Std. Error	LL	UL	M	Std. Error	LL	UL	M	Std. Error	LL	UL
Strength*	73.33	1.70	69.97	76.69	69.57	1.83	65.95	73.18	66.05	1.72	62.65	69.44
Intelligence**	68.53	1.85	64.89	72.18	64.24	1.98	60.33	68.16	58.70	1.86	55.03	62.68
Attractiveness**	57.97	2.28	53.48	62.47	54.94	2.45	50.11	59.77	47.89	2.30	43.36	52.43
Heroicness*	61.09	1.75	57.64	64.55	58.97	1.88	55.26	62.68	54.67	1.76	51.19	58.15
Evilness	28.18	1.92	24.39	31.98	30.95	2.07	26.87	35.02	32.53	1.94	28.70	36.36
Leadership	62.08	1.84	58.45	65.71	59.54	1.97	55.64	63.43	57.96	1.85	54.31	61.62
Courage	64.41	1.99	60.49	68.33	63.14	2.13	58.93	67.35	59.13	2.00	55.18	63.08
Identification	29.60	2.24	25.17	34.02	32.81	2.41	28.06	37.56	25.60	2.26	21.14	30.06

All significant differences were between the Blue and Black conditions. \*\*Significant  $p < .01$ ; \*Significant  $p < .05$

**Effects of character gender.** For gender, specifically, there was a main effect of gender for the dependent variable of strength in that male heroes were rated more highly on strength compared to female heroes, irrespective of race,  $F(1,168) = 173.51, p < .001$ , partial  $\eta^2 = 0.50$ . Additionally, a main effect of gender was found for intelligence, such that female heroes were rated higher on intelligence compared to male heroes irrespective of race,  $F(1,168) = 64.39, p < .001$ , partial  $\eta^2 = .23$ . Attractiveness was also found to be statistically different between male heroes and female heroes where females were rated higher on attractiveness,  $F(1,168) = 10.57, p = .001$ , partial  $\eta^2 = .06$ . A significant difference between male heroes and female heroes was also found for the leadership rating, such that males were rated higher,  $F(1,168) = 5.75, p = .02$ , partial  $\eta^2 = .03$ . Finally, a significant difference between male heroes and female heroes was found on the identification rating, in that females were identified with more than males,  $F(1,168) = 24.46, p < .001$ , partial  $\eta^2 = .13$ . There were no significant differences between genders on the variables heroism, evilness, or courage.



Table 3

*Estimated marginal means for sex of character*

Variable	Male				Female			
	<i>M</i>	Std. Error	95% CI		<i>M</i>	Std. Error	95% CI	
			LL	UL			LL	UL
Strength**	76.52	1.11	74.33	78.70	62.78	1.17	60.47	65.08
Intelligence**	60.40	1.15	58.13	62.67	67.25	1.20	64.88	69.62
Attractiveness**	51.63	1.50	48.67	54.60	55.57	1.46	52.69	58.46
Heroicness	59.13	1.15	56.87	61.39	57.35	1.22	54.95	59.76
Evilness	30.69	1.30	28.13	33.26	30.41	1.25	27.94	32.89
Leadership*	60.91	1.16	58.61	63.20	58.81	1.19	56.47	61.16
Courage	62.90	1.29	60.35	65.45	61.55	1.25	59.08	64.02
Identification**	26.26	1.45	23.39	29.13	32.41	1.48	29.49	35.54

\*\*Significant at  $p \leq .001$ ; \*Significant  $p < .05$ 

**Overall attitudes toward heroes.** Overall attitude ratings were also assessed using an average of the eight original dependent variables. A repeated measures ANOVA was used with overall attitude as the dependent variable. There was not an interaction between character race and gender and no main effect of gender. A main effect of character race was found  $F(2,169) = 4.47, p = .013$ . Post hoc tests revealed that the racial difference was still present between the Black ( $M = 55.19, SD = 10.54$ ) and Blue ( $M = 50.79, SD = 9.28$ ) heroes where Black heroes were higher overall,  $p = .017$ .

**Effects of participants' own race.** Due to the lack of variability in racial representation, the participants own race was assessed using a comparison code of non-White versus White to assess the impact of participant's race on ratings. In a repeated measures MANOVA, participant race and character race condition were imputed as two fixed factors due to their categorical nature. An interaction of participant race and character race was not found nor a main effect of participant race. A main effect of

character race condition (Wilks'  $\lambda = .846$ ,  $F(16,316) = 1.718$ ,  $p = .042$ ) was found. The racial difference was between the Black and Blue character, with Black characters being rated higher on strength, intelligence, attractiveness, and heroism.

**Influence of wishful identification.** Although wishful identification did not significantly differ between conditions, its influence on participants' ratings was still assessed. A regression analysis was conducted for each dependent variable as well as for overall attitude ratings. Wishful identification was found to be predicative of overall attitude ratings, strength, intelligence, attractiveness, heroism, leadership, and courage ratings but not evilness or identification ratings (See Appendix I, Table 4).

Wishful identification was positively correlated with individuals' desire to have similar social interactions as superheroes, have a similar body type as superheroes, levels of extraversion, emotional stability, and levels of superhero knowledge (See Appendix I, Table 5). Level of superhero knowledge was positively correlated with openness to new experiences, levels of admiration of superheroes, and the degree to which individuals would dress like a superhero on a day other than Halloween (See Appendix I, Table 6).

## Discussion

In the current study, participants' ratings of Black superheroes' strength, intelligence, attractiveness, and heroism were significantly higher than Blue-skinned heroes; however, no differences were found between the Black and White superheroes (both are natural skin tones) or White and Blue (an alien skin tone). Additionally, regardless of skin tone, male superheroes were rated as having greater strength and

leadership, while female heroes were rated higher in intelligence and attractiveness. Participants also identified with female superheroes more. Although participants were instructed that the study was about the influence of costume designs and race was a between subject variable, significant differences emerged for ratings of superheroes regardless of costume aesthetics.

Interestingly, Black heroes were rated consistently higher on a number of attributes (see above) compared to Blue heroes, this may be indicative of the out-group phenomena such that the Blue or Black heroes formed an extreme outgroup. Specifically, the Blue superheroes may prime an unknown group, for which participants have no background knowledge, resulting in more negative (or less positive) views directed at them because they are unknown, and are outside the typical members of preexisting schemas. This suggests that a lack of familiarity may have negatively affected the ratings of the Blue heroes. This is supported by research showing that individuals with increased familiarity with a stigmatized group are less likely to promote prejudicial attitudes toward that group (Corrigan, Edwards, Green, Thwart, & Perm, 2001). For the current study, Blue heroes were unfamiliar to participants therefore, Blue heroes may have been stigmatized and rated as lower on several superhero qualities compared to the other groups. Additionally, the current study's findings are contrary to the findings of Peck and colleagues (2015) who assessed racial bias through the embodiment of other races as well as the embodiment of an alien race. Racial implicit bias was not found for the alien race due to the lack of stereotypes readily available. The current study found that the Blue

(alien) character was rated as the least capable on all superhero qualities, though only significantly different on strength, intelligence, attractiveness, and heroism. This suggests some bias against this unknown hero's abilities to perform, whereas Peck et al. (2015) found that there was no implicit bias against a purple alien control due to a lack of stereotypes accompanying that skin tone. A major difference between the current study and Peck et al.'s is the embodiment aspect. The current study lacked the embodiment of the character, as such, group distinctions (naturally occurring skin tones versus alien skin tone) were more salient, whereas the embodiment of a different race allows for an individual to feel as though they are a part of the race that was embodied. This difference may suggest that the absence of the embodiment of an alien character does not impact in-group bias ratings. In the current study, the familiar in-group (naturally occurring skin tone) benefited from in-group preference or bias. Furthermore, in the current study some information was provided about the innate nature of the figures (i.e. superhero) that may serve to frame them as exceptional and may have triggered a differing comparison window than in Peck et al.'s study.

Additionally, the results of the current study may be explained by the process of subtyping (Maurer et al., 1995; Richards & Hewstone, 2001). As normal humans may form the participant's superordinate group for comparisons, it may be that superhumans were considered an out-group compared to normal humans (the ingroup). Subtyping occurs when group members who do not conform to the stereotype of the group (Blue heroes) are set aside as exceptions to the rule. In this grouping phenomenon, these

exceptions to the rules for the group are mentally placed aside keeping the superordinate category (super humans/superheroes) static (Maurer et al., 1995). The process of subtyping is also influenced by levels of typicality of disconfirming members of a group. Specifically, in the current study, the Blue heroes, although not specifically measured, had less typicality in their belonging to the superhero superordinate category. This may be due to the fact that participants were told that this disconfirming representation was a superhero, but due to its exemplar and unfamiliar nature, the Blue heroes were rated lower than the naturally occurring characters but were still considered part of the superhero superordinate (as seen by their similar mean ratings; Maurer et al., 1995; Richards & Hewstone, 2001). Participants may not have been actually comparing skin tones but may have been comparing the superheroes presented to the participants' preexisting schema of superheroes. Therefore, participants rated superheroes of natural skin tones higher based on familiarity in comparison to Blue superheroes who were less familiar. The concept of subtyping may also explain the lack of difference between the naturally occurring skin tone conditions. Although there were no differences in ratings between the White heroes and Black heroes, this may have been due to the focus on the superordinate groups (human versus superheroes) rather than the subordinate grouping of common characteristics (e.g., race of the hero). Additionally, participants saw heroes of a single race. The between subjects design did not allow for participants to see heroes of different races and hindered participants' ability to make racial comparisons.

Although the rating difference between Black heroes and White heroes were not significantly different and the differences between the Black heroes and Blue heroes were only significantly different on some superhero qualities, a trend was seen in that the Black heroes had the highest mean ratings of all the conditions on strength, intelligence, attractiveness, heroism, leadership and courage and the lowest ratings on the quality evilness. Although seemingly positive, the fact that Black heroes were rated the highest on most qualities, may speak to the tendency of the superhumanization of Blacks on both human qualities and superhuman qualities (Trawalter, Hoffman, & Waytz, 2012; Waytz, Hoffman, & Trawalter, 2015). Superhumanization is the representation of others as having qualities that are supernatural. Specifically, previous research has found that Black individuals are often assumed to feel less pain especially when the individual is perceived to have faced more hardship (Trawalter et al., 2012). These seemingly positive stereotypes of minorities are equally harmful. For example, if Black individuals are assumed to feel less pain, they may be socialized different based on this incorrect assumption or may be expected to put their personal well-being aside (Trawalter et al., 2012). The higher ratings of the Black heroes may also speak to the possibility that there is an inherent assumption or stereotype that is confirmed through television, such that Blacks are often portrayed as extremely strong and aggressive (Burgess, Dill, Stermer, Burgess, & Brown, 2011). It is important to note that of the three hero conditions, participants who saw Black heroes tended to have higher scores on the measure of social desirability, though not significantly different from the other two conditions. The

participant's tendency to respond in a socially desirable manner may have impacted the ratings of Black heroes and may not be representative of actual views of people.

Additionally, the current study found significant differences between the ratings of male and female heroes irrespective of race on some qualities. Female heroes were rated stereotypically on some qualities (e.g., lower on strength and higher on attractiveness) but not on other qualities (e.g., higher scores of intelligence). When overall attitudes towards heroes (an average of ratings on all qualities) was assessed, differences between male and female heroes were no longer seen making it appear as though there was not a bias for or against females. These results are similar to results found by Baker & Raney (2007), who found that contrary to all other female cartoons, female superheroes were portrayed in a less stereotypical way. Although female superheroes were not as stereotyped, some stereotypes have remained (e.g., more emotional, attractiveness, appearance focused; Baker & Raney, 2007). One thing to note is the two possible explanations of these differences presented by superheroes: female superheroes beat the stereotypes, or female superheroes must compensate for lack of strength by being intelligent.

Additionally, female heroes were rated as more intelligent than males. As Baker and Raney (2007) suggested, female superheroes may have to compensate for the lack of strength by being more intelligent. This belief may attribute to participant ratings of female heroes' intelligence being higher than males (males were rated significantly stronger). Although women are stereotyped to underperform in math (Brown & Josephs,

1999), in the current study, intelligence stereotypes were not primed. Although the difference in attractiveness is in line with previous research (e.g., Baker & Raney, 2007), the difference may not be that the female heroes were more attractive but simply due to the nature of the stimuli themselves. Since the figures were line drawings, the male heroes may have been perceived as less attractive to participants compared to an actual person or an image of an actual person. It is also interesting that although male heroes were rated lower on intelligence, they were rated higher on leadership abilities compared to female heroes. It is important to also note that female participants outnumbered males in the current study, therefore participant ratings may be skewed towards female's stereotypical views of superheroes. Female heroes were identified with more compared to male heroes. This finding supports Hoffner & Buchanan's (2005) findings that characters of the same gender of viewers are identified with more than characters of a different gender. In the current study, participants were mostly female as such female heroes were identified with more than male heroes.

All heroes were rated above average (greater than 50 on a 0 to 100 scale) on the dependent variables strength, intelligence, attractiveness, heroism, leadership and courage; however, identification ratings were rated low (less than 40 on a 0 to 100 scale) for all races and both genders. Low identification ratings for heroes may also provide evidence to suggest that in the current study participants were making comparisons between the outgroup of superhero and the ingroup of human. As such, heroes were not



identified with because they formed own distinct out-group that may be seen as unachievable therefore participants did not identify with characters.

In the current study, an individual's desire to be more like superheroes was predictive of their overall positive perceptions of superheroes but not necessarily how much an individual identified with a single hero as seen by the lack of prediction to individual hero identification ratings. It may be that individuals identify more with either the idea of superheroes or an "idealized superhero" more than generic superhero figures utilized in the current study.

#### Limitations & Future Directions

The current study provides a novel look into how individuals may perceive superheroes of different races and genders and how wishful identification may impact those perceptions. The current study found that superheroes of an unknown race (Blue) may be viewed as less positive than heroes of a naturally occurring race. Future research could examine if exposure and familiarity with unknown racial heroes affects perceptions. The current study consisted of mostly female participants therefore, the results may be more representative of female attitudes. Future research should examine attitudes within the larger general population to confirm generalizability of the results of the current study. Additionally, the mixed model design of the current study was implemented in the attempt to maintain the study's internal validity (and to minimize hypothesis guessing), but it did not allow for participants to directly compare racially different heroes which may activate biases or stereotypes. To assess this potential effect,

an additional within subjects study has been performed and is being analyzed. The current study used figures that were comparable to humans; however, figures of different body types were not assessed, as such, future research should examine how racial and gender attitudes may influence perceptions of superheroes of different body types including alien body types. The current study's use of line drawings may have prevented identification with the heroes. Future research should continue to assess the impact of superheroes on perceptions of race and gender as well as how gender and racial attitudes impact perceptions of superheroes and how they may be used to influence group identities and perceptions.

The results of the current study suggest there is preexisting superhero schema, as such, heroes who are atypical (alien skin tone) may be set aside as exceptions and evaluated less favorably. Despite similarities to humans (e.g., race and gender), superheroes may create a distinct outgroup. Additionally, superheroes may still be the subject of gender stereotypes, despite their "super" qualities. Finally, it was observed that perceptions of superheroes may be impacted by the perceivers desire to be more like superheroes (i.e. wishful identification).

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## APPENDIX A

### Informed Consent

Stephen F. Austin State University

**Title:** Design Aspects of Superheroes and Perceptions.

**Introduction to the Study:** This experiment is interested in design characteristics of superheroes and perceptions.

**Duration:** The length of time you will be participating is approximately 30 minutes

**Procedure:** You will be asked to rate characters on several qualities. In addition, you will be asked to fill out a few short surveys afterwards.

**Risk:** There is no known risk associated with this study. Potential benefits of this study include facilitating the understanding of the perception of action characters

**Confidentiality:** The records of this study will be kept private. Your name will not be attached to the answers you provide. Only the investigators will have access to the raw data. In the event of the current study being published or presented, no information will be provided that will make it possible to identify a participant. Once collected, all data will be kept in secured files, in accord with the standards SFASU, federal regulations, and the American Psychological Association.

**Voluntary Nature:** Your participation is entirely voluntary and you may choose not to participate in this study or withdraw your consent at any time. You will not be penalized in any way should you choose not to participate or withdraw. You may skip any question that makes you uncomfortable or any question you do not wish to answer.

**Contacts and questions:** If you have any questions or concerns about being in this study, you should contact Emily Sanchez at [onealea@jacks.sfasu.edu](mailto:onealea@jacks.sfasu.edu) or Dr. Sparkman at [sparkmannl@sfasu.edu](mailto:sparkmannl@sfasu.edu). The researchers may also be reached by phone through the psychology department (936)-468-4402. Additionally, you may also contact the SFASU Office of Research and Sponsored Programs at [orsp@sfasu.edu](mailto:orsp@sfasu.edu) or (936)-468-6606 if you would like more information regarding your rights as a research participant.

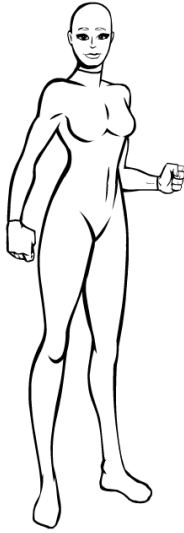
**Compensation:** For your participation in the current study you will receive \$0.10 through MTurk. If you are a SFASU student from SONA you will receive 1 research credit (R-Point).

☐ By checking the yes box, I signal that I have read this consent form, am 18 years of age or older, and have been given a chance to ask questions. I agree to participate in the research study described about titled, Design Aspects of Action Characters. I may print a copy of this form for my records.

## APPENDIX B

### Stimuli

#### Base figures



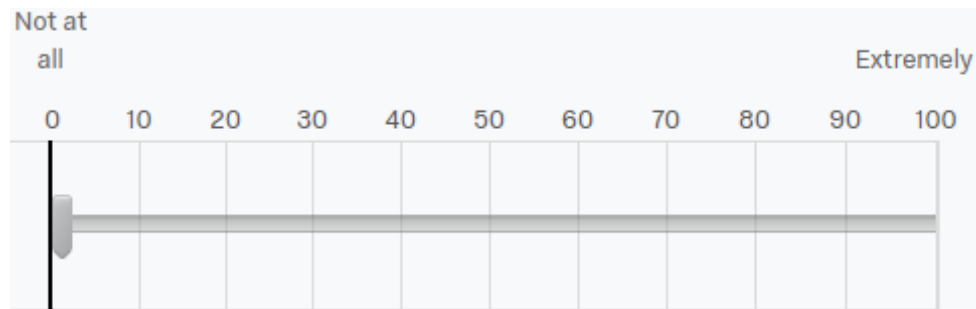
#### Examples of costumed figures



## APPENDIX C

### Character Ratings

Instructions: You will see a series of characters. Please rate the characters on the following qualities using the scale provided: 0 (not at all) to 100 (extremely).



1. How strong is this character?
2. How intelligent is this character?
3. How attractive is this character?
4. How heroic is this character?
5. How evil is this character?
6. How much of a leader is this character?
7. How courageous is this character?
8. How much do you identify with this character?

## APPENDIX D

### Modified Wishful Identification Questionnaire (MWI)

Instructions: Take a moment and think of your favorite television or movie character. With that person or character in mind, please answer the following questions using the scale provided.

1. He/she is the sort of person I want to be like myself
2. Sometimes I wish I could be more like him/her
3. He/she is someone I would like to emulate
4. I'd like to do the kinds of things he/she does on the show
5. I would NEVER want to act the way he/she does on the show.

Items are rated on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree)

#### **'Subscale' greenwood**

1. Given the opportunity and power, how likely is it that you would behave like a superhero?  
a. Extremely unlikely; b. Somewhat likely; c. Neither likely nor unlikely;  
d. Somewhat likely; e. Extremely likely
2. How much would you want to have social interactions like superheroes?  
a. Not at all  
b. A little  
c. A moderate amount  
d. A lot  
e. A great deal
3. If you were a superhero, would you do so solo or as a part of a team?  
a. Solo b. A team
4. Would you want to have the body type associated with a superhero?  
a. Not at all  
b. A little  
c. A moderate amount  
d. A lot  
e. A great deal
5. How willing would you be to dress up as a superhero and walk around in public on a random day other than Halloween?  
a. Not at all willing  
b. A little willing  
c. Willing  
d. Very willing

APPENDIX E  
Social Roles Questionnaire (SRQ)

1. People can be both aggressive and nurturing regardless of sex\*
2. People should be treated the same regardless of their sex\*
3. The freedom that children are given should be determined by their age and maturity level and not by their sex.\*
4. Tasks around the house should not be assigned by sex.\*
5. We should stop thinking about whether people are male or female and focus on other characteristics\*
6. A father's major responsibility is to provide financially for his children.
7. Men are more sexual than women
8. Some types of work are just not appropriate for women
9. Mothers should make most decisions about how children are brought up
10. Mothers should work only if necessary
11. Girls should be protected and watched more than boys
12. Only some types of work are appropriate for both men and women
13. For many important jobs, it is better to choose men instead of women.

Items were rated on a scale from 0 to 100% and anchored by strongly disagree and strongly agree  
Those with an \* are to be reverse scored.

## APPENDIX F

### Short homogeneous Marlow-Crowne Social Desirability Scale (M-C SDS; MC1)

1. I'm always willing to admit it when I make a mistake
2. I always try to practice what I preach
3. I never resent being asked to return a favor
4. I have never been irked when people expressed ideas very different from my own
5. I have never deliberately said something that hurt some's feelings
6. I like to gossip at times
7. There have been occasions when I took advantage of someone
8. I sometimes try to get even rather than forgive and forget
9. At times I have really insisted on having things my own way
10. There have been occasions when I felt like smashing things

The items are responded to using true and false.

## APPENDIX G

### Demographics form

Instructions: Please provide the following information.

Age (in years):

I describe my sex as:

- a. Male
- b. Female
- c. Other/ wish not to disclose

I describe my race as: (Select ONE)

- a. American Indian / Alaska Native
- b. Asian
- c. Native Hawaiian or Other Pacific Islander
- d. Black or African American
- e. White
- f. More than one race
- g. Unknown or not reported

Please state your ethnicity

- a. Hispanic or Latino
- b. Not Hispanic or Latino

Are you color deficient (visual color blindness)?

- a. Yes    b. No

Please state your highest level of education:

- a. High school
- b. Some college
- c. Bachelor's degree
- d. Master's degree
- e. Doctorate
- f. Other

If you had to guess what the purpose of the study what would you guess?

Fill in the blank

Please provide your level of knowledge of superheroes

- a. No knowledge
- b. Very little knowledge
- c. Adequate knowledge



- d. Very knowledgeable
- e. Extremely knowledgeable

How often do you read comic books related to superheroes?

- a. Never
- b. Sometimes (1-2 comics a month)
- c. Often (3-4 comics a month)
- d. Very often (4 or more comics a month)

How many movies related to superheroes have you seen?

Drop down of 1- 50

How often do you watch movies related to superheroes?

- a. Never
- b. Sometimes (1-2 times a year)
- c. Often (3-4 times a year)
- d. Very often (5 or more times a year)

How many television shows related to superheroes (i.e., Netflix or cable TV shows)?

Drop down menu of 1-50

Do you admire superheroes?

- a. Not at all
- b. Not much
- c. I don't know
- d. A little
- e. Very much

Off the top of your head, how many superheroes do you think you could name?

Drop down of 1-10+

To what degree do you enjoy superhero related things (i.e., comics, games, movies, television shows)?

- a. Not at all
- b. A little
- c. Somewhat
- d. Some
- e. A great deal

## APPENDIX H

### Debriefing Form

Thank you for participating in the present study. The purpose of the current research is to examine the design characteristics of action characters that influence perceptions of the qualities that superheroes possess.

We appreciate your time and participation. If you have any questions or concerns please feel free to contact Emily Sanchez at [onealea@jacks.sfase.edu](mailto:onealea@jacks.sfase.edu) or Dr. Nathan Sparkman at [sparkmannl@sfasu.edu](mailto:sparkmannl@sfasu.edu). You may also contact the Office of Research and Sponsored Programs at (936)-468-6606 or via email at [orsp@sfasu.edu](mailto:orsp@sfasu.edu).

In the event that you feel any psychological distress, please contact the SFA Counseling Services office at (936)-648-2401, the National Suicide Prevention Lifeline (24 hours) 1-800-273-8255 or to find a center near you visit [https://www.iasp.info/resources/Crisis\\_Centres/](https://www.iasp.info/resources/Crisis_Centres/).

Thank you.

APPENDIX I  
Additional results

Table 4

*Regression using Wishful Identification to predict individual dependent variables*

Dependent variable	<i>t</i>	<i>p</i>	$\beta$	<i>F</i>	<i>p</i>	Adjusted $R^2$
Male Strength	3.65	.000	.270	13.35	.000	.067
Female Strength	2.99	.003	.223	8.91	.003	.044
Male Intelligence	3.71	.000	.274	13.77	.000	.070
Female Intelligence	2.81	.006	.211	7.89	.006	.039
Male Attractiveness	2.64	.009	.198	6.96	.009	.034
Female Attractiveness	1.86	.029	.167	4.88	.029	.022
Male Heroism	3.02	.003	.226	9.11	.003	.045
Female Heroism	2.28	.024	.173	5.22	.024	.024
Male Evilness	.302	.763	.023	.091	.753	-.005
Female Evilness	.162	.871	.012	.026	.871	-.006
Male Leadership	2.84	.005	.213	8.00	.005	.040
Female Leadership	2.08	.039	.157	4.31	.039	.019
Male Courage	3.50	.001	.259	12.22	.001	.062
Female Courage	2.76	.006	.207	7.61	.006	.037
Male Identification	1.59	.114	.121	2.52	.114	.009
Female Identification	1.36	.175	.104	1.86	.175	.005

Table 5

*Correlations of Wishful Identification and superhero demographic knowledge.*

Variables	M	SD	1	2	3	4	5	6	7	8
1. WID	3.38	0.80	--							
2. Superhero Knowledge	2.89	0.90	.313**	--						
3. Admiration of supers	3.51	1.16	.575**	.596**	--					
4. Enjoyment of heroes	3.27	1.23	.385**	.557**	.691**	--				
5. Behave like	3.71	0.99	.487**	.184*	.412**	.307**	--			
6. Social interactions	3.33	1.04	.435**	.240**	.359**	.211**	.397**	--		
7. Body type	3.40	1.09	.351**	.097	.278**	.185*	.292**	.226**	--	
8. Dress like	1.85	0.86	.147	.292**	.247**	.273**	.092	.123	.146	--

\*\* $p < .001$ , \* $p < .05$

Table 6

*Correlations between Wishful Identification and the Ten Item Personality Inventory*

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. WID	3.38	0.80	--					
2. Extraversion	4.08	1.57	.212**	--				
3. Openness	5.22	1.15	.148		--			
4. Conscientiousness	5.15	1.17	.069			--		
5. Agreeableness	4.77	1.11	.100				--	
6. Emotional Stability	4.26	1.38	.160*					--

## VITA

After completing high school at S.H. Rider High School in Wichita Falls, Texas, Emily went on to study psychology and sociology at Midwestern State University in Wichita Falls, Texas. She completed her Bachelor of Science in Psychology in May 2016. Emily then went on to study at Stephen F. Austin State University in August 2016, where she received her Masters of Arts in General Psychology in May 2018.

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Publication Manual of the American Psychological Association (Sixth Edition)

This thesis was typed by Emily A. Sanchez.